

Retrieval Quality Control



AIRS Science Team Meeting Greenbelt, Maryland October 2003

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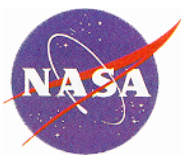




Objective



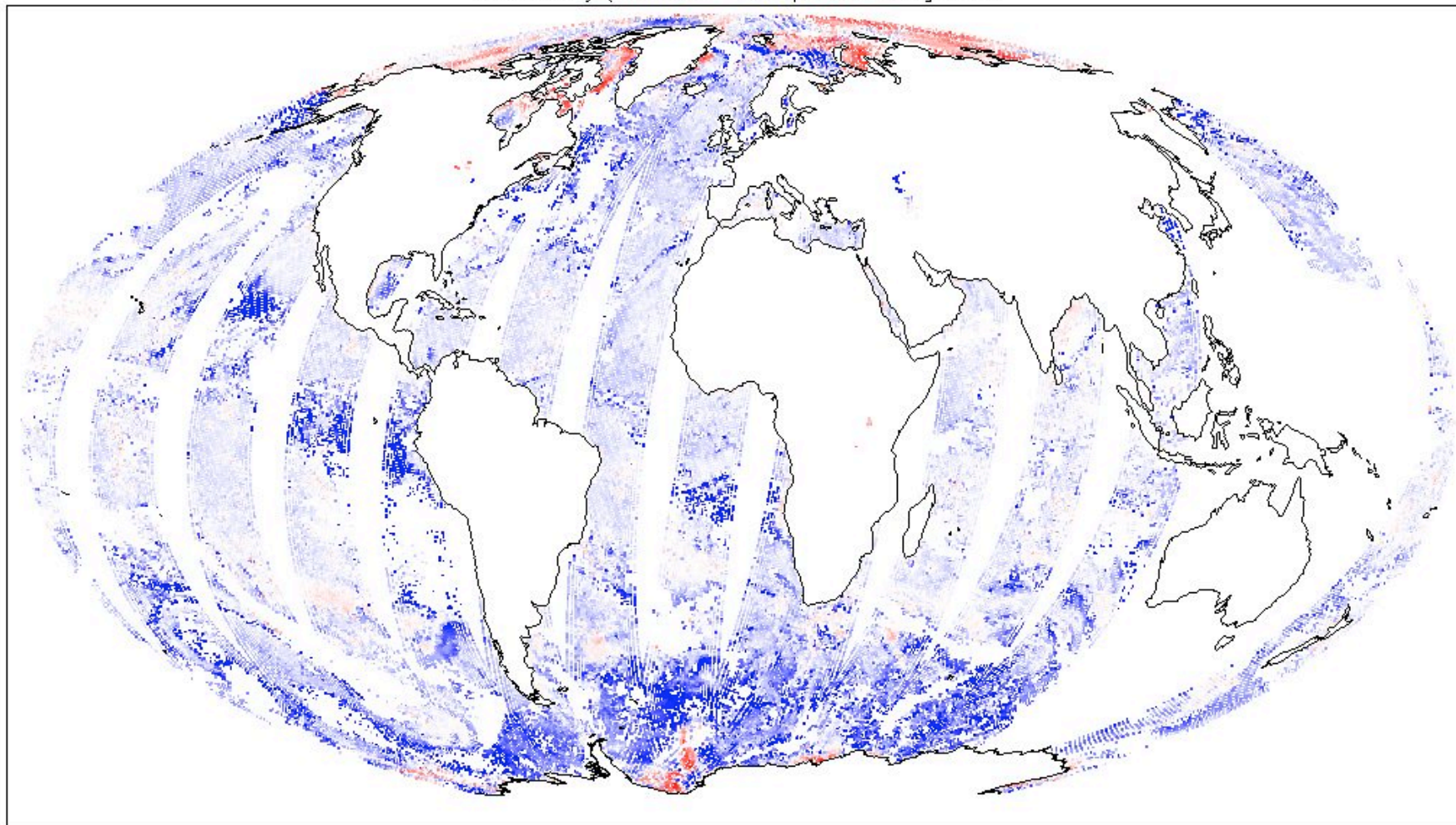
- Current rejection criteria leave many outliers
 - 10% overall
 - Unable to detect cases where cloud clearing assumptions fail
 - Night/Descending orbit has much more outliers
 - Mostly over well known stratus contaminated area
 - Impact above boundary layer seems small
- Develop rejection algorithm independent of Forecast SST
 - Avoid using $\text{abs}(\text{SST-NCEP}) < 3$.
 - JPL members are studying post retrieval tests
 - To be implemented in the next delivery to NOAA/NRT
 - Early January implementation for February 2004 delivery



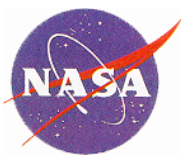
SST Retrieval - ECMWF

Descending Orbits of January 3rd, 2003

SST Anomaly (Retrieved - NCEP) - Descending Orbits



JPL

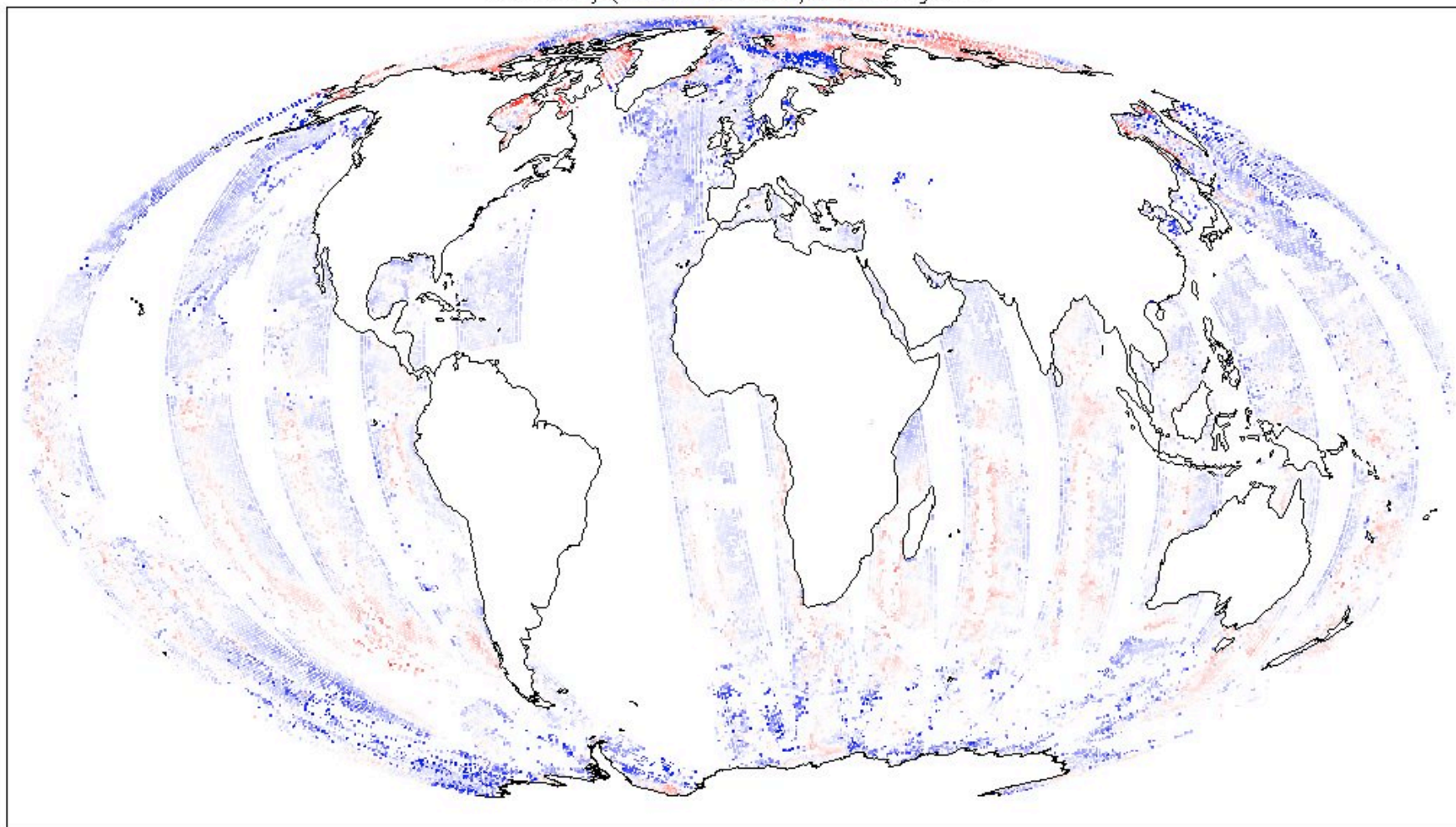


SST Retrieval - ECMWF

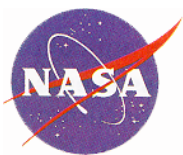


Ascending Orbits of January 3rd, 2003

SST Anomaly (Retrieved - NCEP) - Ascending Orbits



JPL

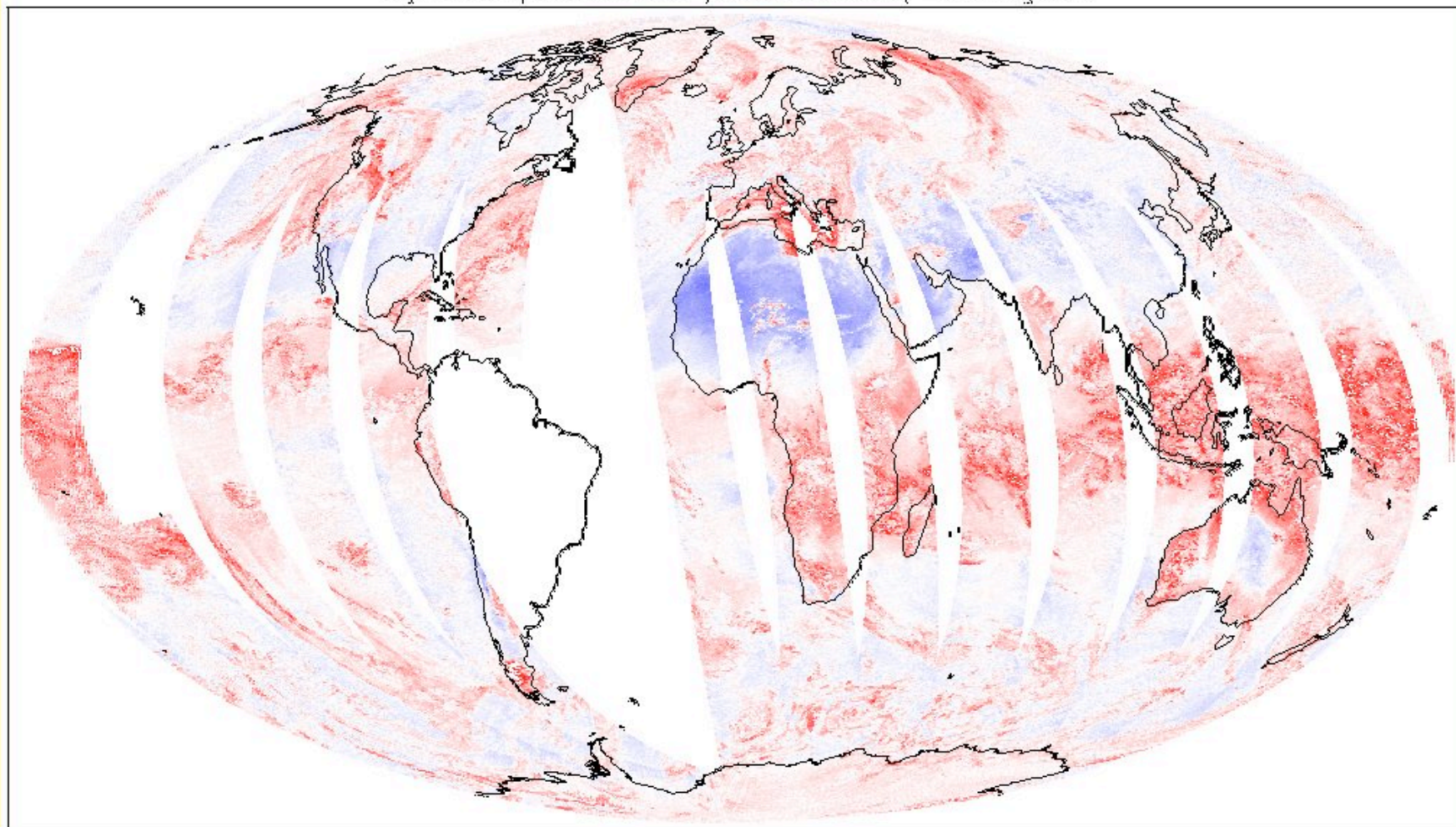


Tb983 - Tb860

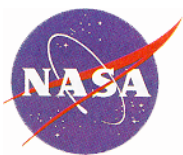
Descending Orbits



Brightness Temperature Differences (Tb983.5 - Tb860.5) - Ascending Orbits



JPL

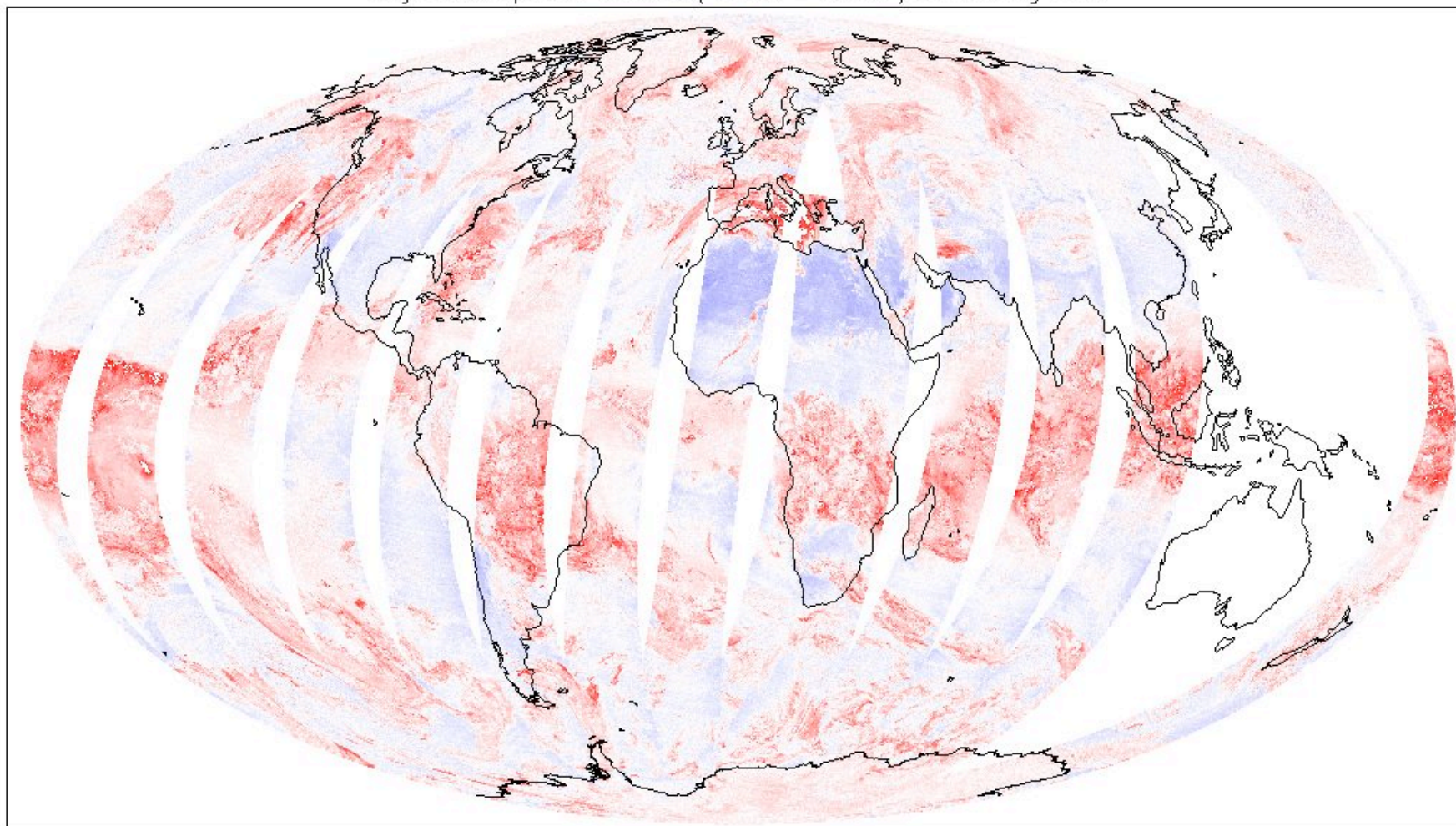


Tb983 - Tb860

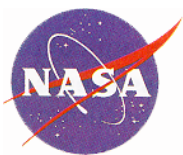
Ascending Orbits



Brightness Temperature Difference (Tb983.3 - Tb859.5) - Descending Orbits



JPL

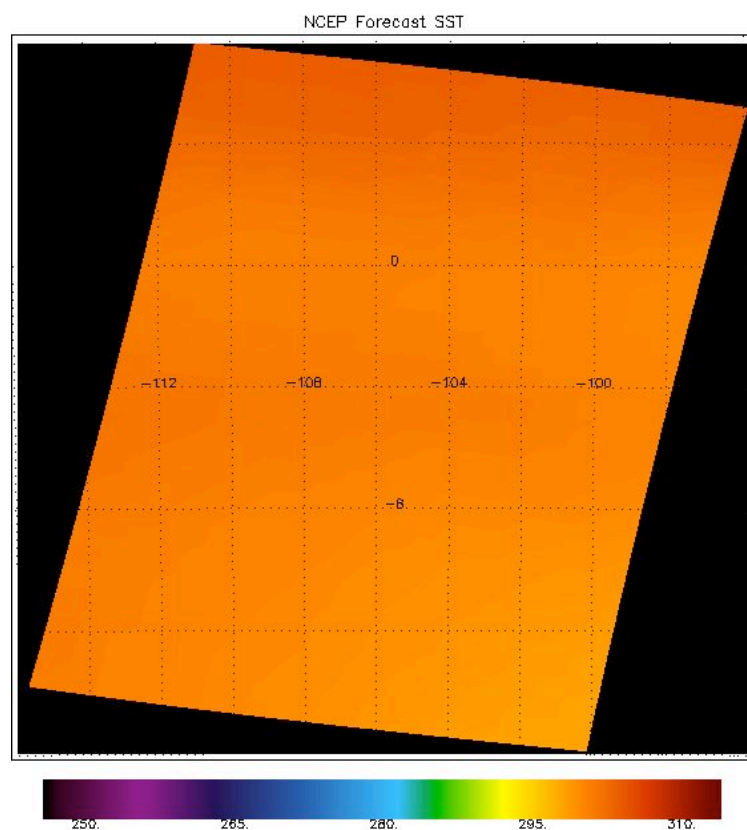


Case Study

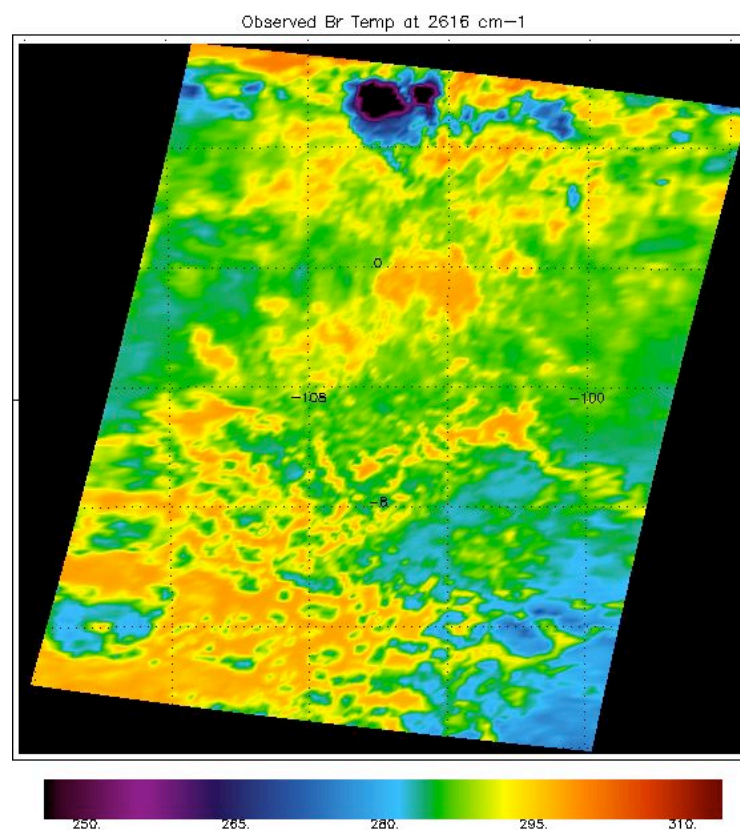
Granule 85 of Jan 3rd, 2003

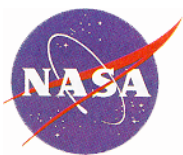


NCEP SST



Obs 2616 cm^{-1} Br Temp

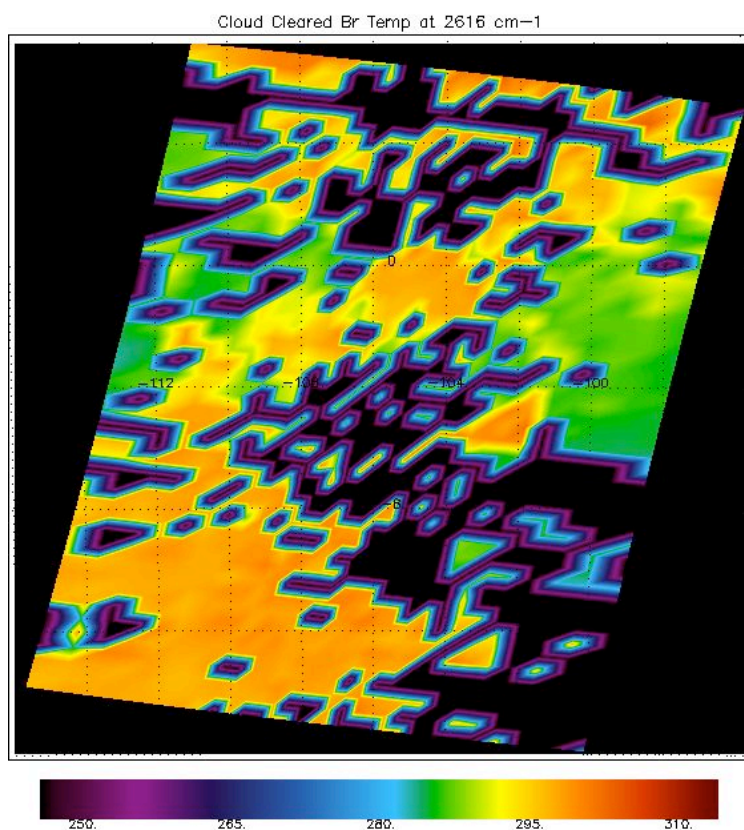




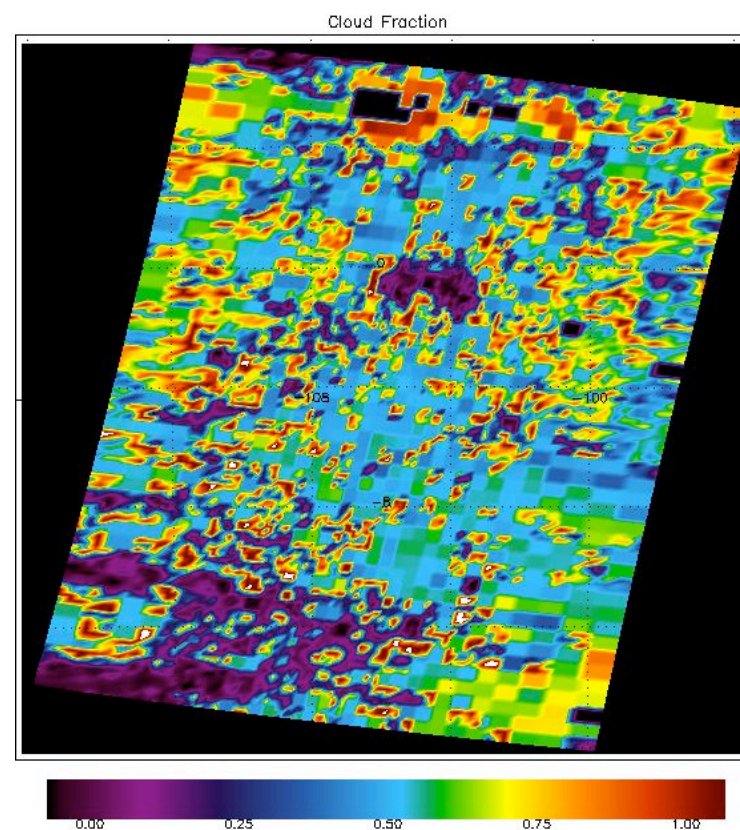
Cloud Cleared Radiances and Cloud Fraction

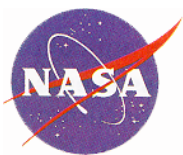


Cloud Cleared 2616 cm^{-1}



Cloud Fraction



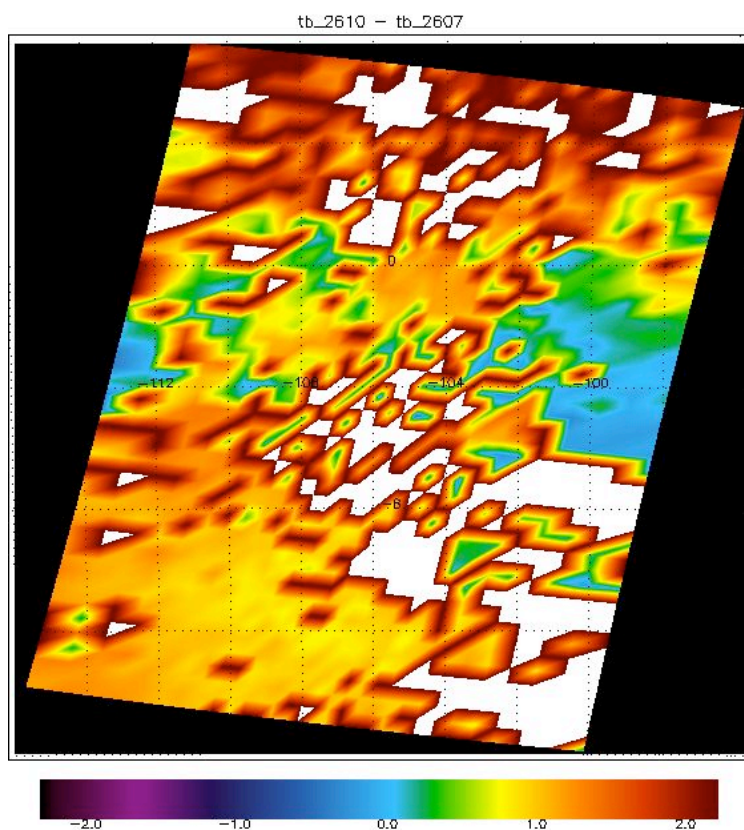


HHA Weak Water Line Test

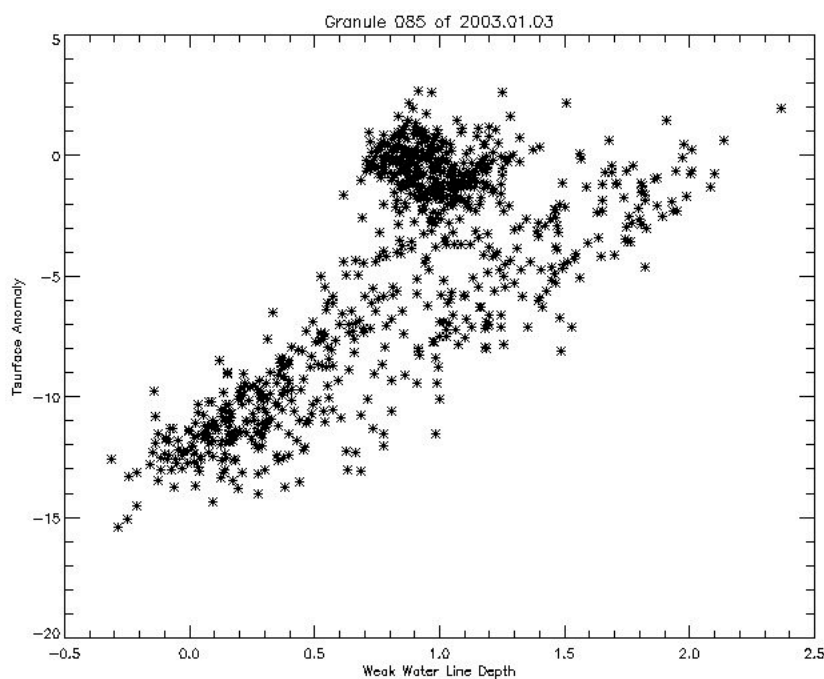
Tb_2610 - Tb_2607

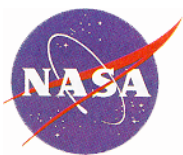


Weak Water Line Depth



Scatter Diagram

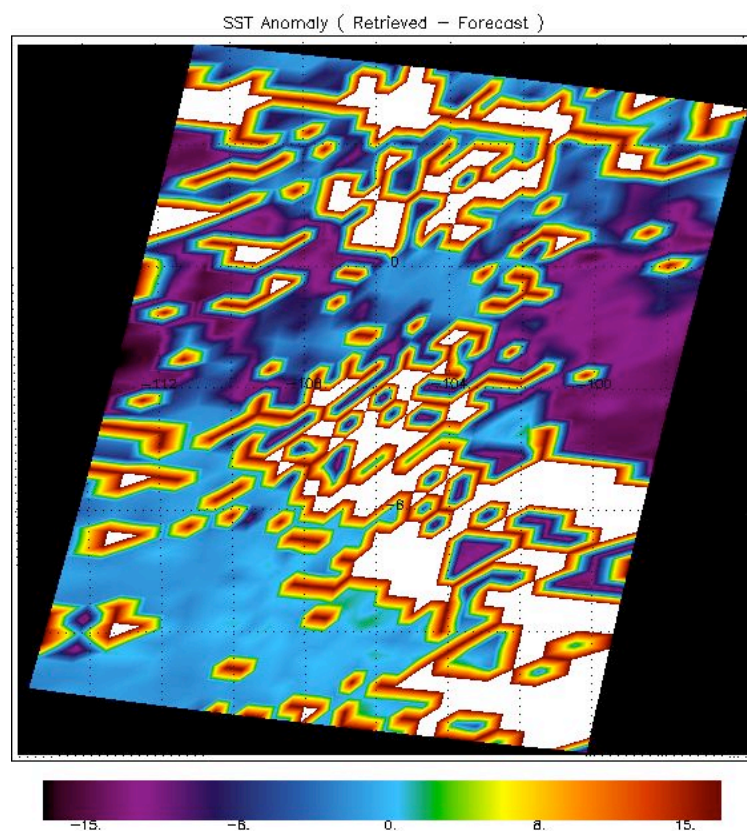




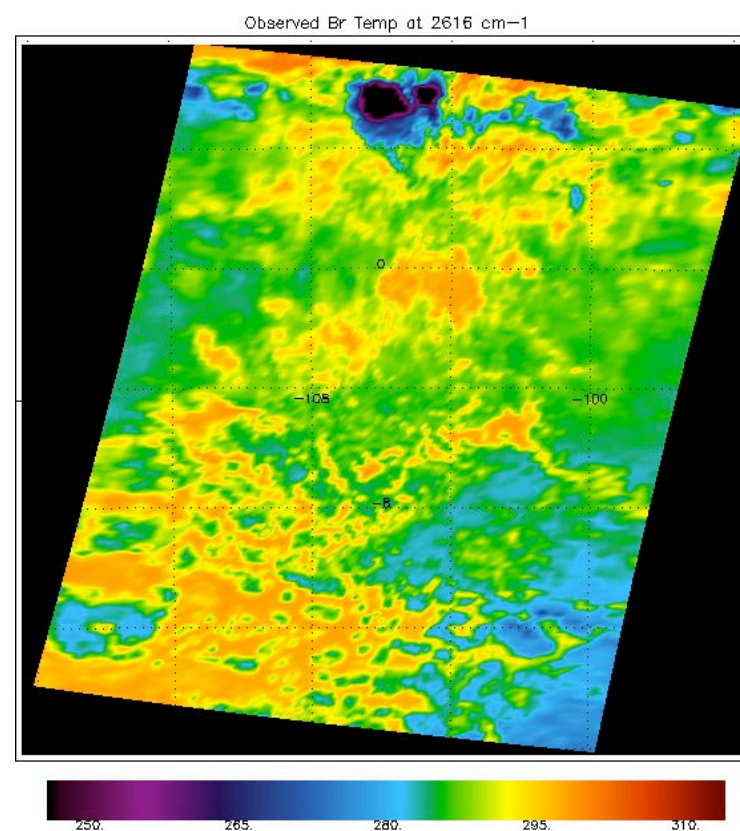
SST - NCEP

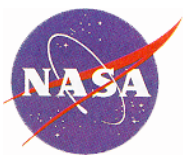


SST - NCEP



2616 cm^{-1}





Retrieval QC Tasks



Name	Task Description
S-Y Lee	MW-IR differences (SST, profiles,..)
L Chen	Obs Rad - CC Rad
E Fishbein	Cirrus & stratus signatures in CC rad
E Fetzer	Geophysical realism – horizontal gradient
E Fetzer	Geophysical realism – vertical profile
D Hagan	Undetected clouds – window channels
E Olsen	Vis - IR cloud comparison
S-Y Lee	Aumann test